DETAILED ACTION

This action is in response to Application filed December 5, 2007, which includes the

most recently amended claims and Appeal Brief filed on May 11, 2009. Claims 1-17 are

pending.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or

additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR

1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the

payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with

Rex Huang on August 7, 2009.

AMENDMENT TO CLAIMS

1.   (Currently Amended) In a data storage system that stores both database records

        and ancillary data, a method for processing a request from a host to write a

        database record to a target location on a logical device associated with a data-

        storage system in data communication with the host, the logical device having a

        first set of extents designated for storage of database records and a second set of

        extents designated for storage of ancillary data, the method comprising:

                maintaining, at the data storage system, <u>an extent-table having</u> information

        for distinguishing between the first set of extents and the second set of extents<u>,</u>

        <u>each of the extents being associated with a corresponding set of processing</u>

        <u>instructions</u>;

                based on the information, determining that the target location is on an

        extent that is designated for storage of a database record, and that the target

location is not on an extent that is designated for storage of ancillary data, the ancillary data being different from the database record and not subject to data verification, whereby the database record is not written to an extent that is designated for storage of ancillary data; and

writing the database record only to an extent that is designated for storage of a database record.

2.   (Currently Amended) The method of claim **1**, wherein ~~maintaining information for distinguishing between the first set of extents and the second set of extents comprises maintaining an~~ the extent table ~~having~~ has extent table entries identifying properties associated with the extent,

wherein the properties depend at least in part on whether the extent is designated for storage of a database record and not designated for storage of ancillary data.

9.   (Currently Amended) A method of processing an [[I/O]] Input-or-Output request to access a storage device having a plurality of extents defined thereon, each of the extents having a corresponding set of processing instructions associated therewith, the method comprising:

receiving an [[I/O]] Input-or-Output request having an associated target location on the storage device;

identifying, based on an extent-table, an extent set associated with the target location, the extent set having at least a first extent and a second extent, the extent-table having information for distinguishing between the first extent and the second extent, each of the first and second extents having its own associated processing instructions in which data stored in the first extent are associated with a database record and are subject to data verification, and data stored in the second extent are associated with ancillary data and are not subject to data verification, the ancillary data being different from the database record;

maintaining the extent-table;

determining that execution of the processing instructions for a first extent

does not preclude execution of processing instructions for the second extent;

executing the ~~I/O transaction~~ Input-or-Output request;

executing the processing instructions associated with the first extent; and

executing the processing instructions associated with the second extent;

wherein the database record is only written to an extent that is designated

for storage of a database record.

10.   (Currently Amended) The method of claim 9, wherein receiving an [[I/O]] Input-
or-Output request comprises receiving a write request.

14 - 15. (Canceled)

16.   (Currently Amended) A computer-readable medium having encoded thereon
software for causing a data storage system that stores both database records and
data other than database records to process a request from a host to write a
database record to a target location on a logical device associated with a data-
storage system in data communication with the host, the logical device having a
first set of extents designated for storage of database records and a second set of
extents designated for storage of ancillary data ~~other than database records~~, the
software comprising instructions that, when executed, cause a computer to:

maintain, at the data storage system, an extent-table having information

for distinguishing between the first set of extents and the second set of extents,

each of the extents being associated with a corresponding set of processing

instructions; and

based on the information in the extent-table, determine that the target

location is on an extent that is designated for storage of a database record, and that

the target location is not on an extent that is designated for storage of ancillary

data, the ancillary data being different from the database record and not subject to data verification,

        whereby the database record is written only to an extent that is designated for storage of a database record, and

        whereby the database record is not written to an extent that is designated for storage of ancillary data.

17.   (Currently Amended) A computer-readable medium having encoded thereon software for processing an [[I/O]] Input-or-Output request to access a storage device having a plurality of extents defined thereon, each of the extents having a corresponding set of processing instructions associated therewith, the software including instructions that, when executed, cause a computer to:

    receive an [[I/O]] Input-or-Output request having an associated target location on the storage device;

    identify, based on an extent-table, an extent set associated with the target location, the extent set having at least a first extent and a second extent, the extent-table having information for distinguishing between the first extent and the second extent, each of the first and second extents having its own associated processing instructions in which data stored in the first extent associated with a database record and are subject to data verification, and data stored in the second extent are associated with ancillary data and are not subject to data verification, the ancillary data being different from the database record;

    maintain the extent-table;

    determine that execution of the processing instructions for a first extent does not preclude execution of processing instructions for the second extent;

    execute the I/O transaction Input-or-Output request;

    execute the processing instructions associated with the first extent; and

    execute the processing instructions associated with the second extent;

    wherein the database record is only written to an extent that is designated for storage of a database record.

Allowable Subject Matter

Claims 1-13, 16 and 17 are allowable over the prior art of record, renumbered as claims 1-15, respectively.

The following is an examiner's statement of reasons for allowance:

Claims 1, 9, 16 and 17 are allowable because the best prior art of record or that encountered in searching for the invention, fails to disclose or suggest a logical device or storage having a first set of extents designated for storage of database records and a second set of extents designated for storage of ancillary data, maintaining an extent-table having information for distinguishing between the first set of extents and the second set of extents, each of the extents being associated with a corresponding set of processing instructions and writing the database record only to an extent that is designated for storage of a database record, as claimed in addition to the other claim provisions.

With regard to claims 2-8 and 10-13, they depend from allowable claims 1 and 9 respectively, and are therefore allowable on the same basis.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following prior arts show the state of art with respect to writing data to specified targets:

U.S. Patent No. 6,016,501 of Martin et al.

U.S. Patent No. 6,832,229 of Reed

U.S. Publication No. 2008/0071842 of Tokuda et al.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARC R. FILIPCZYK whose telephone number is (571)272-4019. The examiner can normally be reached on Mon-Fri, 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ali can be reached on 571-272-4105. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mohammad Ali/
Supervisory Patent Examiner, Art Unit 2158

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August 11, 2009
/Marc R Filipczyk/
Examiner, Art Unit 2158